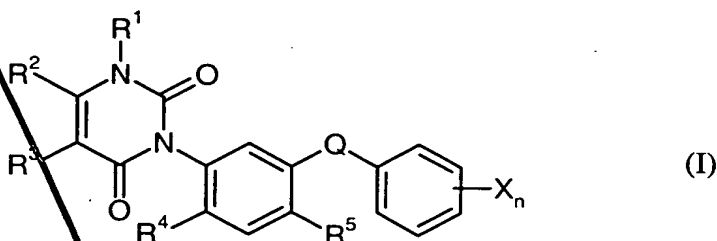


Patent Claims

1. Substituted phenyluracils of the general formula (I)



5 in which

n represents the numbers 0, 1, 2, 3, 4 or 5,

10 Q represents O (oxygen), S (sulphur), SO, SO₂, NH or N(alkyl),

R¹ represents hydrogen, amino or optionally substituted alkyl,

R² represents carboxyl, cyano, carbamoyl, thiocarbamoyl or in each case optionally substituted alkyl or alkoxycarbonyl,

15 R³ represents hydrogen, halogen or optionally substituted alkyl,

R⁴ represents hydrogen, cyano, carbamoyl, thiocarbamoyl or halogen,

20 R⁵ represents cyano, carbamoyl, thiocarbamoyl, halogen or in each case optionally substituted alkyl or alkoxy, and

25 X represents hydroxyl, mercapto, amino, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl, alkylamino, dialkylamino, alkylcarbonyl, alkoxycarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl,

C1
cont

alkylcarbonyloxy, alkoxycarbonyloxy, alkylaminocarbonyloxy, dialkylaminocarbonyloxy, phenylcarbonyloxy, alkylcarbonylamino, alkoxycarbonylamino, alkylsulphonylamino, alkenyl, alkenyloxy, alkenyloxy-carbonyl, alkynyl, alkynyloxy or alkynyloxy-carbonyl, where, in the event that n is greater than 1, X in the individual compounds which are possible can also have different meanings from those indicated.

2. Substituted phenyluracils according to Claim 1, characterized in that

n represents the numbers 0, 1, 2, 3 or 4,

Q represents O (oxygen), S (sulphur), SO, SO₂, NH or N(C₁-C₄-alkyl),

R¹ represents hydrogen, amino, or C₁-C₄-alkyl which is optionally substituted by cyano, carboxyl, fluorine, chlorine, C₁-C₄-alkoxy or C₁-C₄-alkoxy-carbonyl,

R² represents carboxyl, cyano, carbamoyl, thiocarbamoyl, or represents C₁-C₄-alkyl or C₁-C₄-alkoxy-carbonyl, each of which is optionally substituted by cyano, fluorine, chlorine or C₁-C₄-alkoxy,

R³ represents hydrogen, fluorine, chlorine, bromine, or represents C₁-C₄-alkyl which is optionally substituted by fluorine or chlorine,

R⁴ represents hydrogen, cyano, carbamoyl, thiocarbamoyl, fluorine, chlorine or bromine,

R⁵ represents cyano, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, or represents C₁-C₄-alkyl or C₁-C₄-alkoxy, each of which is optionally substituted by fluorine and/or chlorine, and

C1
cont

5

10

15

20

25

X hydroxyl, mercapto, amino, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, iodine, or represents alkyl, alkoxy, alkylthio, alkylsulphinyl, alkylsulphonyl or alkylamino, each of which has 1 to 6 carbon atoms and each of which is optionally substituted by hydroxyl, cyano, carboxyl, carbamoyl, fluorine, chlorine, C₁-C₄-alkoxy, C₁-C₄-alkylthio, C₁-C₄-alkylsulphinyl, C₁-C₄-alkylsulphonyl, C₁-C₄-alkyl-carbonyl, C₁-C₄-alkoxycarbonyl, C₂-C₄-alkenyloxycarbonyl, C₂-C₄-alkinyl-oxycarbonyl, C₁-C₄-alkylaminocarbonyl, di-(C₁-C₄-alkyl)aminocarbonyl, phenoxycarbonyl, benzyloxycarbonyl, phenylaminocarbonyl, or represents dialkylamino having 1 to 6 carbon atoms in each of the alkyl groups, or represents alkylcarbonyl, alkoxycarbonyl, alkylaminocarbonyl, alkylcarbonyloxy, alkoxycarbonyloxy or alkylaminocarbonyloxy, each of which has 1 to 6 carbon atoms in the alkyl groups and each of which is optionally substituted by cyano, fluorine, chlorine, bromine or C₁-C₄-alkoxy, or represents dialkylaminocarbonyl or dialkylaminocarbonyloxy, each of which has 1 to 6 carbon atoms in the alkyl groups, or represents phenylcarbonyloxy, or represents alkylcarbonylamino, alkoxycarbonylamino, alkylsulphonylamino, each of which is optionally substituted by fluorine, chlorine or bromine, or represents alkenyl, alkenyloxy, alkenyloxycarbonyl, alkinyl, alkinyloxy or alkinyloxycarbonyl, each of which has up to 6 carbon atoms and each of which is optionally substituted by cyano, carboxyl, fluorine, chlorine, bromine or C₁-C₄-alkoxy-carbonyl.

3. Substituted phenyluracils according to Claim 1, characterized in that

30

n represents the numbers 1, 2 or 3,

*C'
cont*

5

Q represents O (oxygen), S (sulphur), SO, SO₂, NH or N(CH₃),

10

R¹ represents hydrogen, amino, or represents methyl, ethyl, n- or i-propyl, each of which is optionally substituted by cyano, fluorine, chlorine, methoxy or ethoxy,

15

R² represents carboxyl, cyano, carbamoyl, thiocarbamoyl, or represents methyl, ethyl, n- or i-propyl, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, each of which is optionally substituted by cyano, fluorine, chlorine, methoxy or ethoxy,

20

R³ represents hydrogen, fluorine, chlorine, bromine, or represents methyl or ethyl, each of which is optionally substituted by fluorine and/or chlorine,

25

R⁴ represents hydrogen, fluorine or chlorine,

30

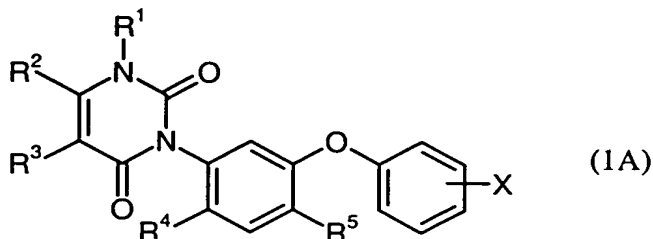
R⁵ represents cyano, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, methyl or trifluoromethyl, and

X represents hydroxyl, mercapto, amino, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, or represents methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl, methylamino, ethylamino, n- or i-propylamino, n-, i-, s- or t-butylamino, each of which is optionally substituted by cyano, carboxyl, carbamoyl, fluorine, chlorine, methoxy, ethoxy, n- or i-propoxy, methylthio, ethylthio, n- or i-propylthio, methylsulphinyl, ethylsulphinyl, methylsulphonyl, ethylsulphonyl, acetyl, propionyl, n- or i-butyryl, methoxycarbonyl, ethoxycarbonyl, n- or i-

C'
cont

5 propoxycarbonyl, allyloxy carbonyl, 1-buten-3-yl-oxy-carbonyl,
2-buten-4-yl-oxy-carbonyl, propargyloxy carbonyl, 1-buten-3-yl-oxy-
carbonyl, 2-buten-4-yl-oxy-carbonyl, methylaminocarbonyl,
ethylaminocarbonyl, n- or i-propylaminocarbonyl,
10 dimethylaminocarbonyl, diethylaminocarbonyl, phenoxycarbonyl,
benzyloxy carbonyl, phenylaminocarbonyl or benzylaminocarbonyl, or
represents dimethylamino or diethylamino, or represents acetyl,
propionyl, n- or i-butyryl, methoxycarbonyl, ethoxycarbonyl, n- or
i-propoxycarbonyl, methylaminocarbonyl, ethylaminocarbonyl, n- or
15 i-propylaminocarbonyl, acetyloxy, propionyloxy, n- or i-butyroyloxy,
methoxycarbonyloxy, ethoxycarbonyloxy, n- or i-propoxycarbonyloxy,
methylaminocarbonyloxy, ethylaminocarbonyloxy, n- or
i-propylaminocarbonyloxy, each of which is optionally substituted by
cyano, fluorine, chlorine, methoxy, ethoxy, n- or i-propoxy, or
20 represents dimethylaminocarbonyl, diethylaminocarbonyl,
dimethylaminocarbonyloxy or diethylaminocarbonyloxy, or represents
phenylcarbonyloxy, or represents acetylamino, propionylamino, n- or
i-butyrylamino, methoxycarbonylamino, ethoxycarbonylamino, n- or
i-propoxycarbonylamino, methylsulphonylamino,
25 ethylsulphonylamino, n- or i-propylsulphonylamino, n-, i-, s- or
t-butylsulphonylamino, each of which is optionally substituted by
fluorine or chlorine, or represents ethenyl, propenyl, propenyloxy,
propenyloxy carbonyl, ethinyl, propinyl, propinyloxy or
propinyloxy carbonyl, each of which is optionally substituted by cyano,
30 carboxyl, fluorine, chlorine, methoxycarbonyl or ethoxycarbonyl.

4. Substituted phenyluracils according to Claim 1, characterized by the general formula (IA)

C1
cont

in which

- 5 R^1 represents hydrogen, amino or methyl,
- R^2 represents trifluoromethyl, chlorodifluoromethyl, difluoromethyl or
 pentafluoroethyl,
- 10 R^3 represents hydrogen, chlorine or methyl,
- R^4 represents hydrogen, fluorine or chlorine,
- R^5 represents cyano or thiocarbamoyl, and
- 15 X represents hydroxyl, mercapto, amino, nitro, cyano, carboxyl,
 carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, or represents
 methyl, ethyl, methoxy, ethoxy, methylthio, ethylthio,
 methoxycarbonyl or ethoxycarbonyl, each of which is optionally
20 substituted by cyano, carboxyl, carbamoyl, fluorine, chlorine,
 methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl,
 n- or i-propoxycarbonyl, allyloxycarbonyl, propargyloxycarbonyl, 1-
 buten-3-yl-oxycarbonyl, 2-buten-4-yl-oxycarbonyl, propargyl-
 oxycarbonyl, 1-buten-3-yl-oxycarbonyl, 2-buten-4-yl-oxycarbonyl,
 methylaminocarbonyl, ethylaminocarbonyl, n- or i-
25 propylaminocarbonyl, dimethylaminocarbonyl, diethylaminocarbonyl,
 phenoxycarbonyl, benzyloxycarbonyl, phenylaminocarbonyl or

C1
cont

benzylaminocarbonyl, or represents ethenyl which is substituted by methoxycarbonyl or ethoxycarbonyl.

5. Substituted phenyluracils according to Claim 4, characterized in that

5
R¹ represents methyl,

R² represents trifluoromethyl, chlorodifluoromethyl, difluoromethyl or pentafluoroethyl,

10
R³ represents hydrogen, chlorine or methyl,

R⁴ represents hydrogen, fluorine or chlorine,

15
R⁵ represents fluorine, chlorine, bromine or trifluoromethyl, and

20
X represents hydroxyl, mercapto, amino, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, or represents methyl, ethyl, methoxy, ethoxy, methylthio, ethylthio, methoxycarbonyl or ethoxycarbonyl, each of which is optionally substituted by cyano, carboxyl, carbamoyl, fluorine, chlorine, methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, allyloxycarbonyl, propargyloxycarbonyl, 1-buten-3-yl-oxycarbonyl, 2-buten-4-yl-oxycarbonyl, propargyl-oxycarbonyl, 1-buten-3-yl-oxycarbonyl, 2-buten-4-yl-oxycarbonyl, methylaminocarbonyl, ethylaminocarbonyl, n- or i-propylaminocarbonyl, dimethylaminocarbonyl, diethylaminocarbonyl, phenoxycarbonyl, benzyloxycarbonyl, phenylaminocarbonyl or benzylaminocarbonyl, or represents ethenyl which is substituted by methoxycarbonyl or ethoxycarbonyl.

25
30

C1
cont

6. Substituted phenyluracils according to Claim 4, characterized in that

R¹ represents hydrogen, amino or methyl,5 R² represents carboxyl, cyano, carbamoyl, thiocarbamoyl, methoxycarbonyl or ethoxycarbonyl,R³ represents hydrogen, chlorine or methyl,10 R⁴ represents hydrogen, fluorine or chlorine,R⁵ represents cyano, thiocarbamoyl, fluorine, chlorine, bromine or trifluoromethyl, and

15 X represents hydroxyl, mercapto, amino, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, or represents methyl, ethyl, methoxy, ethoxy, methylthio, ethylthio, methoxycarbonyl or ethoxycarbonyl, each of which is optionally substituted by cyano, carboxyl, carbamoyl, fluorine, chlorine, methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, allyloxycarbonyl, propargyloxycarbonyl, 1-buten-3-yl-oxycarbonyl, 2-buten-4-yl-oxycarbonyl, propargyl-oxycarbonyl, 1-buten-3-yl-oxycarbonyl, 2-buten-4-yl-oxycarbonyl, methylaminocarbonyl, ethylaminocarbonyl, n- or i-propylaminocarbonyl, dimethylaminocarbonyl, diethylaminocarbonyl, phenoxy carbonyl, benzyloxycarbonyl, phenylaminocarbonyl or benzylaminocarbonyl, or represents ethenyl which is substituted by methoxycarbonyl or ethoxycarbonyl.

a 30

7. Substituted phenyluracils according to any of Claims 1 to 6, characterized in that n represents 1.

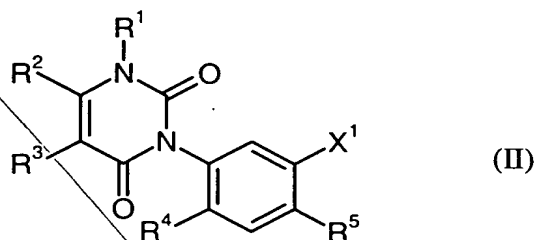
8. Substituted phenyluracils according to ~~any of Claims 1 to 7~~, characterized in that R^2 represents trifluoromethyl.

9. Substituted phenyluracils according to ~~any of Claims 1 to 8~~, characterized in that R^4 represents fluorine.

10. Substituted phenyluracils according to ~~any of Claims 1 to 9~~, characterized in that R^5 represents cyano or thiocarbamoyl.

11. Process for the preparation of substituted phenyluracils according to ~~any of Claims 1 to 10~~, characterized in that

(a) halogenophenyluracils of the general formula (II)

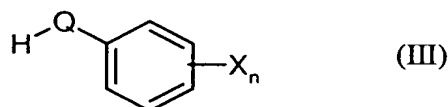


in which

R^1 , R^2 , R^3 , R^4 and R^5 have the meaning given in any of Claims 1 to 10 and

X^1 represents halogen

are reacted with aryl compounds of the general formula (III)



in which

- 60 -

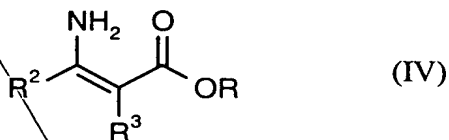
n, Q and X have the meaning given in any of Claims 1 to 10

- or with metal salts of compounds of the general formula (III) -

if appropriate in the presence of a reaction auxiliary and if appropriate in the presence of a diluent,

or in that

(b) aminoalkenoic esters of the general formula (IV)

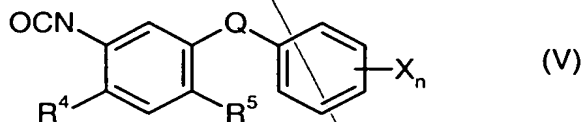


in which

R^2 and R^3 have the meaning given in any of Claims 1 to 10 and

R represents alkyl, aryl or arylalkyl

are reacted with aryl isocyanates of the general formula (V)

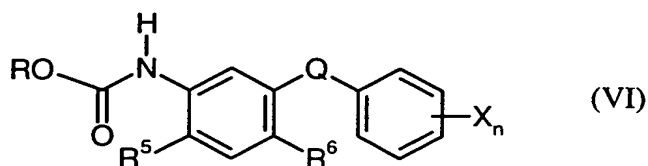


in which

n, Q, R^4 , R^5 and X have the meaning given in any of Claims 1 to 10,

or with arylurethanes (aryl carbamates) of the general formula (VI)

- 61 -



in which

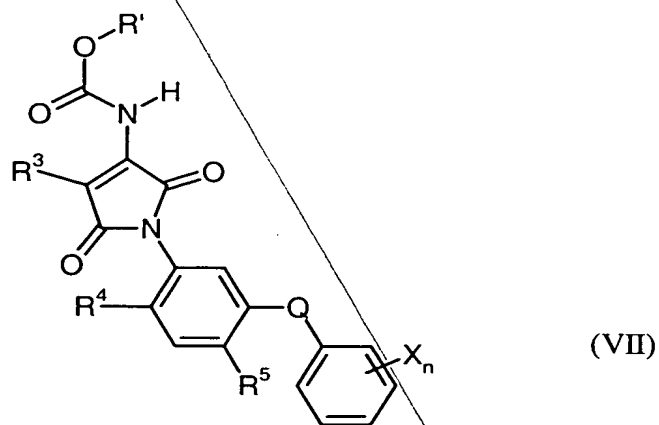
n, Q, R⁵, R⁶ and X have the meaning given in any of Claims 1 to 10 and

R represents alkyl, aryl or arylalkyl,

if appropriate in the presence of a reaction auxiliary and if appropriate in the presence of a diluent,

or in that

(c) N-aryl-1-alkoxycarbonylamino-maleimides of the general formula (VII)



in which

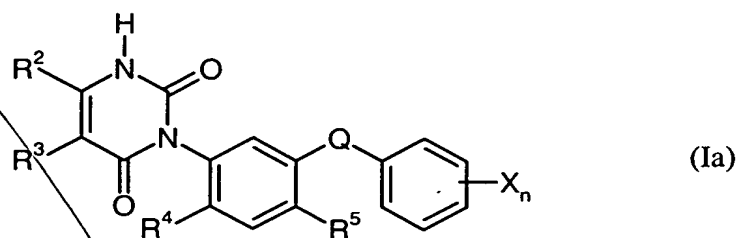
n, Q, R³, R⁴, R⁵ and X have the meaning given in any of Claims 1 to 10 and

R' represents alkyl

are reacted with a metal hydroxide in the presence of water and if appropriate in the presence of an organic solvent,

or in that

(d) substituted phenyluracils of the general formula (Ia)



in which

n, Q, R², R³, R⁴, R⁵ and X have the meaning given in any of Claims 1 to 10

are reacted with 1-aminooxy-2,4-dinitro-benzene or with alkylating agents of the general formula (VIII)



in which

A¹ represents optionally substituted alkyl and

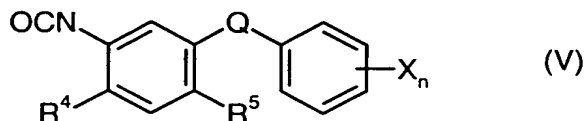
X² represents halogen or the group -O-SO₂-O-A¹,

if appropriate in the presence of a reaction auxiliary and if appropriate in the presence of a diluent,

a' cont

and, if appropriate, electrophilic or nucleophilic or oxidation and reduction reactions are subsequently carried out in the customary manner within the scope of the definition of the substituents.

- 5 12. Aryl isocyanates of the general formula (V)



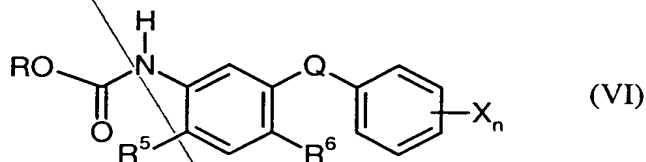
in which

n, Q, R⁴, R⁵ and X have the meaning given in any of Claims 1 to 7, 9 and

10

10.

13. Arylurethanes (aryl carbamates) of the general formula (VI)



in which

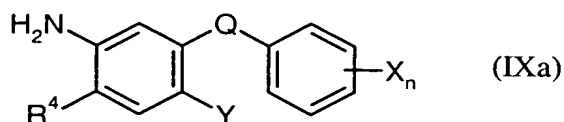
n, Q, R⁵, R⁶ and X have the meaning given in any of Claims 1 to 7 and 10 and

15

R represents alkyl, aryl or arylalkyl.

20

14. Aniline derivatives of the general formula (IXa)



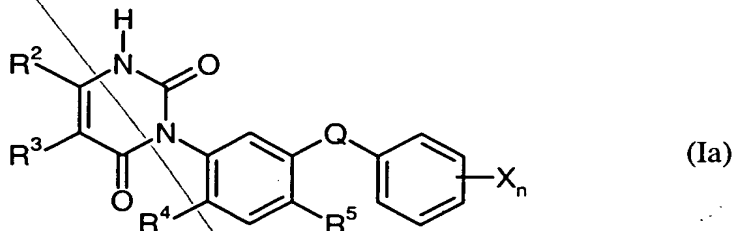
in which

25

~~n, R⁴ and X have the meaning given in any of Claims 1 to 7 and 9 and~~

~~Y represents cyano, thiocarbamoyl or trifluoromethyl.~~

15. Substituted phenyluracils of the general formula (Ia)



in which

~~n, Q, R², R³, R⁴, R⁵ and X have the meaning given in any of Claims 1 to 10.~~

16. Use of at least one substituted phenyluracil according to any of Claims 1 to 10 for controlling undesired plants.

17. Herbicidal composition, characterized in that it comprises at least one substituted phenyluracil as claimed in any of Claims 1 to 10.